Techniques in Free Radical Research: (Laboratory Techniques in Biochemistry and Molecular Biology, Volume 22) by C.A. Rice-Evans, A.T. Diplock and M.C.R. Symons; Elsevier; Amsterdam, 1991; xv + 291 pages. $48.50, Dfl. 95.00. ISBN 0-444-81314-4.

Students are usually advised to provide in their reports brief, but concise, details of their experimental protocols in order that there is sufficient information for the experiment to be duplicated by others. Unfortunately in published papers this is not always the case, and much time may be wasted in trying to follow a published procedure only to find, after considerable effort, that a small but essential detail was omitted. One particular purpose of a book such as this may be to provide tried and tested experimental protocols in order that a research project may move more rapidly to its particular objective.

Research into the involvement of free radicals in biochemistry, biology and medicine has expanded vastly in the last ten years, and now must represent a major area of activity. Different disciplines interact strongly within the field of free radical research, and so practical help may be especially welcome. This book is written by three well-known and active workers in this area and concentrates on practical aspects of a biochemical nature. It provides details of methodology in the areas of free radical production and characterization, assays for antioxidant nutrients and enzymes, and methods for the detection of free radicals and their reaction products in biochemical and biological systems, with particular emphasis on lipids, proteins and DNA. The potentially widely-used assays, such as analysis of malondialdehyde by HPLC and the use of deoxyribose for detection of hydroxyl radicals, are described in detail. More specialized physical techniques are discussed, but in these cases the reader is directed to literature references.

In addition to describing experimental protocols, this book also includes a considerable amount of introductory material. For the newcomer to the subject this is very worthwhile, and it is expected that experienced workers will find new information or a new slant on a particular topic. It is not anticipated that, as an introduction, this book will act as an alternative for the excellent textbook by Halliwell and Gutteridge ("Free radicals in Biology in Medicine"). Nor may this volume by Rice-Evans, Diplock and Symons cover all the material to be found in recent volumes of series such as Methods in Enzymology. But every biological scientist interested in free radicals should find this an affordable book well worth having on the laboratory or office bookshelf.

Roger Bisby

The Cytoskeleton: A Practical Approach; Edited by K.L. Carraway and C.A.C. Carraway; IRL Press at Oxford University Press; Oxford, 1992; xviii + 268 pages. £19.50. ISBN 019-963256-1.

This is the latest in the well established Practical Approach Series from IRL Press. In this volume devoted to the cytoskeleton, the Carraways have collected together a group of authors who inspire confidence in the methodologies that they describe.

The first two chapters are concerned with immunofluorescence and immunogold labeling at the light and electron microscope levels, respectively. The following five chapters address a variety of different approaches to studying the assembly of cytoskeletal proteins into polymers together with the identification and assay of cytoplasmic and membrane proteins that influence the structure and dynamics of the cytoskeleton. The attractive genetics of yeast are used to illustrate the power of molecular biological approaches to cytoskeletal function in living cells and the final chapter, which is focused on intermediate filaments, redresses the balance somewhat in a book that is heavily weighted towards microtubules and microfilaments. A surprise omission was a section on lamins and the nuclear lamina.

Many of the techniques used in cytoskeletal research such as immunocytochemistry, protein purification and modification, protein–protein binding assays, and molecular biological manipulation of cloned cDNAs, are common to all areas of molecular and cell biology. Nevertheless, there is a great deal of merit in assembling protocols and technical advice specifically aimed at experimenters on cytoskeletal proteins. These proteins assemble into biopolymers with their own unique properties, which in turn present there own special technical problems. From my own experience of a good proportion of these techniques, the methods feel reliable and in general are discussed well.

The more arcane aspects of cytoskeletal research, such as the isolation of motor proteins and analysis of their function by gliding assays, are described in some depth, and this was a section that I found to be particularly informative, possibly because I know least about it.

Clearly a major limitation to the usefulness of methods compilations is that they may become, more or less rapidly, obsolescent. Therefore it is a tribute to the persuasive powers of the editors that they managed to convince these authors to devote time to this project. I believe that both the tyro and the experienced worker will have cause to be grateful that they did so.

Peter J. Brophy